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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,681	06/29/2001	Vladislav Vashchenko	75292/12849	8699

7590 11/18/2002  
Jurgen K. Vollrath  
588 Sutter Street #531  
San Francisco, CA 94102

EXAMINER

NGUYEN, JOSEPH H

ART UNIT PAPER NUMBER

2815

DATE MAILED: 11/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/896,681

Applicant(s)

VASHCHENKO ET AL.

Examiner

Joseph Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5,7-12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5,7,11,12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Claim Objections***

Claim 11 is objected to because of the following informalities: --the gate and emitter—should be --a gate and the emitter—in line 5 of claim 11. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by figure 2 of the acknowledged prior art (APA).

Regarding claim 17, figure 2 of (APA) discloses a LVTSCR like ESD protection structure comprising a drain contact region 230, a p+ emitter 116, and a gate 236 where at least part of the drain contact region 230 is located between the p+ emitter 116 and the gate 236.

Regarding claim 5, figure 2 of (APA) discloses the drain contact region 230 is split into at least one first drain contact portion located near the gate and at least one second drain contact region.

Regarding claim 7, figure 2 of (APA) discloses the structure including multiple emitters outside at least part of the drain contact region.

### ***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-12, 14-15, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over figure 2 of the acknowledged prior art (APA) in view of Wei et al.

Regarding claim 11, figure 2 of (APA) discloses a high holding voltage LVTSCR like structure comprising an emitter 116, a drain 230, ...wherein the emitter 116 is located so that at least part of the drain 230 is located between the gate 234 and emitter 116. Figure 2 of (APA) does not disclose a floating drain. However, Wei et al discloses on figure 3 a floating drain 100. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify figure 2 of (APA) by having a floating drain for the purpose of increasing the capacity of handling additional energy from an electrostatic discharge applied in a protection device.

Regarding claims 12, 14-15, figure 2 and Wei et al together discloses all the structure set forth in the claimed invention.

Regarding claim 18, figure 2 of (APA) discloses substantially all the structure set forth in the claimed invention except a floating drain located between the gate and the p+ emitter. However, Wei et al discloses on figure 3 a floating drain 100 located between the gate 120 and the p+ emitter 80. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify figure 2 of (APA) by having a floating drain located between the gate and the p+

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emitter for the purpose of increasing the capacity of handling additional energy from an electrostatic discharge applied in a protection device.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over figure 2 of (APA) as applied to claim 11 above, and further in view of Voldman.

Regarding claim 16, figure 2 of (APA) discloses substantially all the structure set forth in the claimed invention except the first and second drain region being separated by a shallow trench isolation region. However, Voldman discloses on figure 4 the first and second drain regions being separated by shallow trench isolation regions. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify figure 2 of (APA) by having the first and second drain region being separated by a shallow trench isolation region for the purpose of effectively preventing the leakage current in the semiconductor device.

### ***Response to Arguments***

Applicant's arguments with respect to claims 11-12, 14-18, 5 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

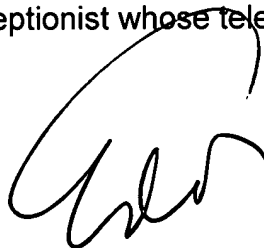
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703)-308-7382 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN  
November 13, 2002



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
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